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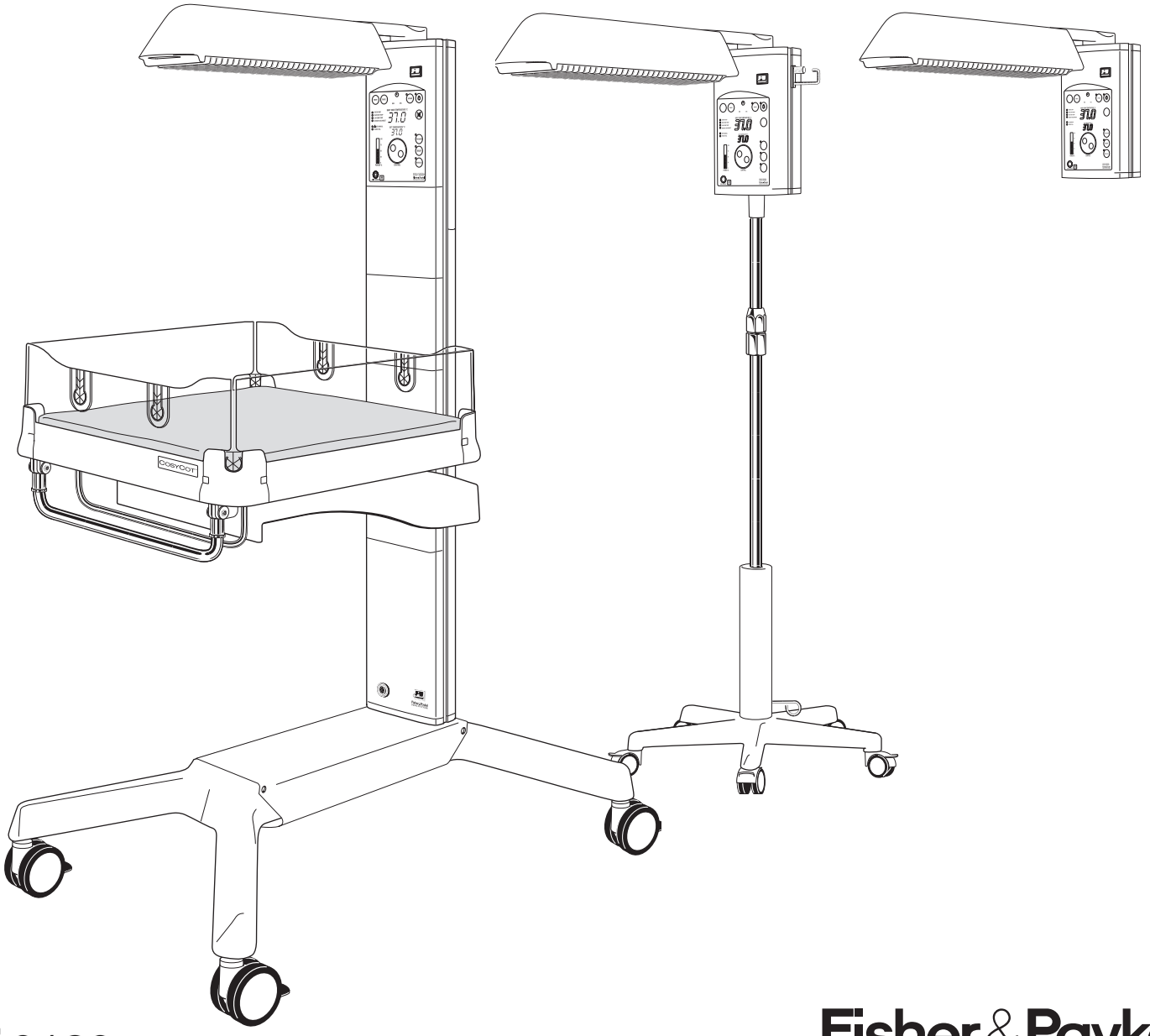
OPERATING MANUAL

900 Series Infant Warmer



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Fisher & Paykel HEALTHCARE

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Chapter 1 – Read This First

1. Symbols

Before use Please read and understand these symbols before using the warmer or accessories.

Type B Equipment

Type BF Applied Part

Caution: Electric Shock Hazards

Attention: Consult Accompanying Documents

Alternating Current

Protective Earth

Functional Earth

Light

Power On (connect to wall power supply)

Power Off (disconnect from wall power supply)

Power On (part of equipment)

Power Off (part of equipment)

Sensor Disconnect

Power Disconnect

Procedure Timer 1 & 2

APGAR

Temperature Sensor

25% Power Level (Prewarm or Standby mode)

Baby Mode (Servo mode)

Manual Mode

Check Baby

High Temperature Alarm

Low Temperature Alarm

WEEE Symbol
(Waste Electrical and Electronic Equipment EU Directive)

2. Definitions

Before use Please read and understand these definitions before using the warmer or accessories.

Warning statement

WARNING

⚠ **A WARNING statement refers to the conditions when the possibility of injury to the patient or user exists if a procedure is not followed correctly.**

Caution statement

CAUTION

- A Caution statement indicates the possibility of damage to the equipment exists if a procedure is not followed correctly.

Note statement

NOTE:

- A Note statement provides additional information intended to clarify points, procedures or instructions.

3. User & Patient Safety

Before use Please read and understand these definitions before using the warmer or accessories.

WARNING

⚠ **This product is intended for use by authorised and qualified medical personnel who are aware of currently known hazards and benefits of infant radiant warmers.**

⚠ **All personnel must be familiar with the operation of this warmer before using the device with patients.**

⚠ **Do not use in the presence of a flammable anaesthetic mixture with oxygen or nitrous oxide, or other flammable materials.**

⚠ **Overloading the shelves and mounting brackets may affect the stability of the warmer.**

⚠ **Independent monitoring of temperature is essential for any baby under an infant radiant warmer.**

⚠ **A warmer cannot differentiate between hypothermia (low skin and low core temperature), and fever (low skin and high core temperature). Ensure the clinical condition of the baby is regularly reviewed.**

⚠ **When using the warmer in Manual mode, continuously monitor the baby's clinical condition and temperature.**

⚠ **It is inadvisable to leave a baby unattended under an infant radiant warmer.**

⚠ **The heat emitted by a radiant warmer may increase the baby's insensible water loss. Consider appropriate measures to maintain proper fluid balance.**

⚠ **Do not use the warmer if the See Manual alarm is activated. Remove the unit from service and refer to qualified personnel.**

⚠ **Ensure that all limbs are clear of moving parts under the base and legs while operating the base**

⚠ **Unlock the front wheels before raising or lowering the base.**

⚠ **Be careful not to dislodge feeding tubes and respiratory lines when operating the electric elevator base**

⚠ **Cobedding is not advisable on the CosyCot. If cobedding is necessary continuously monitor the babies clinical condition and temperature.**

4. Skin Sensor & Sensor Cover

WARNING

⚠ **The warmer cannot measure or control the baby's skin temperature if the skin sensor is not correctly positioned on the baby or a reflective sensor cover is not used.**

⚠ **Use only the 900IW001 DuoSense™, NC-02X SureSense™ or the NC-06X DaisyBud™ skin sensors to measure the baby's skin temperature.**

⚠ **Regularly check that the skin sensor and sensor cover remain correctly positioned on the baby.**

⚠ **Ensure the skin sensor is always in direct contact with the baby's skin.**

⚠ **Never place an obstruction between the heater and the skin sensor other than a reflective sensor cover.**

⚠ **Heating is obstructed if the baby is wrapped in a blanket which comes between the heater and the skin sensor.**

⚠ **Do not use an axillary or rectal temperature sensor measurement to control baby skin temperature. Use of an**

axillary or rectal temperature sensor measurement to control baby skin temperature can result in over-heating or under-heating of the baby.

⚠ **While in Manual mode, the displayed skin temperature is for monitoring purposes only and not used to control heater power.**

5. Heater

WARNING

⚠ **Ensure there is at least 30 cm (12”) clear airspace above the Heater**

⚠ **Mobiles and Wallmounts – For optimal warming ensure the heater grill to mattress distance is 68 cm (27”). Less than 65 cm (25.5”) or more than 80 cm (31.5”) may affect warmer performance, may result in over-heating or under-heating of the baby, and may affect the baby’s clinical condition.**

⚠ **Do not place anything between the heater and patient that may prevent radiant heat from being effective**

⚠ **Ensure the heater head is directly over the patient or in a central position on the CosyCot™.**

⚠ **A baby’s thermal balance can be affected by ambient conditions. Do not place an infant radiant warmer in direct sunlight, near another heat source, or in draughty conditions.**

⚠ **Accessories such as phototherapy lamps and heated mattresses can affect warmer performance by altering the heat distribution across the bassinet mattress.**

⚠ **Never place objects on top of the warmer heater. Never attach objects to any surface on the warmer heater.**

6. Electrical

WARNING

⚠ **Ensure additional equipment connected to the baby or the warmer is electrically safe.**

⚠ **Ensure the power supply is continuous, earthed, approved for hospital use and complies with the voltage specified on the unit.**

⚠ **Ensure a power regulator is used if the power supply voltage or frequency is likely to vary outside the specified range.**

⚠ **Electrical shock hazards exist beneath the control panels. Ensure all service and maintenance is carried out by qualified personnel.**

⚠ **Do not use extension cords to connect the warmer to the power supply. Use only hospital grade power cords and plugs.**

⚠ **Do not use device in electromagnetic environments as per IEC60601-1-2 :2001**

⚠ **Portable and mobile RF communications equipment can effect medical electrical equipment**

7. Bassinet

WARNING

⚠ **Ensure the bassinet is level and side panels are locked into position before transport. Use the transport handle and ensure drawers are in the central position.**

⚠ **Do not move the warmer by pushing or pulling on the bassinet side panels. This action may lead to the deterioration and breakage of the components that act as a safety barrier around the baby.**

⚠ **Tilting the bassinet from the horizontal position can affect warmer performance by altering the heat distribution across the bassinet mattress.**

⚠ **Inspect all tubes or wires connected to the baby before and after tilting bassinet. Tilting or moving the warmer bassinet can pull on tubing or leads.**

⚠ **Do not use the bassinet without the Fisher & Paykel Healthcare mattress.**

⚠ **Ensure the patient and operator limbs are clear of bassinet side panels when opening and closing.**

⚠ **Do not leave the baby unattended in the bassinet when the side panels are folded down.**

8. Elevator Base Models

WARNING

⚠ **Ensure that all limbs are clear of moving parts under the base and legs while operating the electric elevator base.**

⚠ **Unlock the front wheels before raising or lowering the bassinet.**

⚠ **Be careful not to dislodge feeding tubes and respiratory lines when operating the electric elevator base**

9. Transport

WARNING

⚠ **Ensure all wheels are unlocked before using the CosyCot™ or Mobile for transport**

⚠ **Always hold on to the infant warmer when transporting.**

⚠ **Use the transport handle in a horizontal position when transporting to avoid moving the bassinet.**

⚠ **Always lock the wheels before use.**

10. Warmer Loadings

WARNING

⚠ **Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

⚠ **Maximum bassinet loading is 10 kg (22 lb).**

⚠ **Do not exceed maximum side load limits specified on the column label.**

⚠ **Maximum side loads for the CosyCot™ infant warmer are:**
10 kg (22 lb) max up to 130 cm (51.2") from floor
5 kg (11 lb) max from 130 to 160 cm (51.2" to 62.9") from floor
1 kg (2.2 lb) max above 160 cm (62.9") from floor

⚠ **Ensure all mounting accessories are securely fastened in the column mounting slot before items are placed or attached to each accessory.**

⚠ **Do not exceed the maximum total storage drawer and storage tray loading of 7 kg (15.4 lb).**

11. Oxygen administration

WARNING

⚠ **Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

⚠ **The attending physician should prescribe the method, concentration and duration of oxygen administration.**

⚠ **Improper use of oxygen may be associated with serious side effects, including blindness, brain damage and death.**

⚠ **Oxygen-enriched gas has been found to increase the risk of retrolental fibroplasia (retinopathy of prematurity). Use arterial blood gas measurement for regulation of inspired oxygen concentration when oxygen-enriched gas is necessary.**

⚠ **Keep ignition sources away from the warmer and out of the room in which oxygen equipment is located.**

⚠ **Ensure no foreign material is present in the flowmeter nipples or patient supply lines.**

⚠ **Always adjust the flowmeter valves slowly to avoid excessive pressure in patient supply lines.**

⚠ **To avoid possible patient injury or flowmeter damage do not attempt to adjust the flowmeter flowrate above 15 L/min.**

⚠ **Ensure the cylinder valves are closed when the hospital pipeline systems are in use. Supply pressures may become equal and if used simultaneously, cylinder supplies could be exhausted leaving no emergency backup supply.**

⚠ **Compressed gas cylinders can become hazardous projectiles if the gas is released rapidly. To prevent damage from shock or impact, the cylinders must be securely fastened.**

⚠ **Never use grease , oil, organic lubricants or flammable materials with high oxygen concentrations.**

12. Phototherapy

WARNING

⚠ **This product is intended for use by authorized and qualified personnel who are aware of currently known hazards and benefits of phototherapy for treatment of hyperbilirubinemia.**

⚠ **All personnel must be familiar with the operation of this phototherapy system before using the device with patients.**

⚠ **Protect baby's eyes and genitals from Phototherapy light.**

⚠ **Do not look directly at the blue light.**

⚠ **Ensure Phototherapy Lamp head is securely fitted to the mounting bracket.**

⚠ **Electric shock hazards exist beneath the control panels. Ensure qualified personnel carry out all service and maintenance issues.**

13. Cleaning & Maintenance

WARNING

⚠ **Only qualified personnel should carry out service and maintenance procedures.**

⚠ **To avoid the possibility of burns when performing cleaning and maintenance procedures, ensure the warmer is disconnected from the power supply and the heater element is allowed to cool.**

⚠ **To avoid the possibility of electric shock hazard when performing cleaning and maintenance procedures, ensure the warmer is disconnected from the power supply.**

⚠ **Ensure all oxygen and air supplies are turned off and disconnected from the warmer before performing cleaning and maintenance procedures.**

⚠ **Explosion and fire hazards can exist when performing cleaning and maintenance procedures in an oxygen-enriched environment.**

14 General

Before use Please read and understand these definitions before using the warmer or accessories.

CAUTION

- US Federal law restricts this device to sale by or on the order of a physician.
- Do not stand on any part of the warmer base.
- Do not autoclave or gas sterilise the 900IW001 DuoSense™, NC02X SureSense™ or NC06XDaisyBud™ skin sensors.
- Do not autoclave or gas sterilise any part of the warmer.
- Ensure the skin sensor is only removed from the controller by grasping the plug at the front panel. Ensure excessive strain is not placed on the sensor lead during use, cleaning or inspection.
- Do not remove the skin sensor from the baby's skin by placing excessive strain on the cable. Such a procedure can damage the skin sensor and cause irritation to the baby.
- Ensure the bassinet side panels are not used to move the warmer.
- Do not use alcohol,solvents, or abrasive cleaning solutions for cleaning surfaces of the warmer. The use of alcohol and other solvents for cleaning acrylic surfaces can cause crazing and cracking.
- Do not expose plastic and acrylic surfaces to direct radiation from germicidal lamps. The ultraviolet radiation from these sources can cause crazing and cracking.
- Ensure all warmer parts and accessories are checked before returning the device to service. Refer to relevant sections of this operating manual for directions.
- For cold sterilisation: Ensure the cold sterilisation agents are safe for use with the relevant warmer surfaces. If in doubt check with supplier of these agents.
- For chemical liquid immersion: Some chemicals can be harmful to plastics. If in doubt check with chemical supplier.

15. Oxygen Administration

CAUTION

- Disconnect and turn off the oxygen supply when cleaning the unit or performing service and maintenance procedures.
- Ensure cylinder valves are opened slowly to avoid damage to the regulators and resuscitation system.
- Ensure only one cylinder gasket is used per yoke. Using more than one gasket could result in gas leakage.

16. Alarm Summary, Baby Control Models IW910/930/980

Before use

Please read and understand the following alarm summary for baby control models before using the warmer or accessories.

Alarm	Mode	Cause	Effect	Mute Button
Check Baby	Baby	Warmer operating at 100% power for longer than 15 minutes	Heater reduced to 25% power	Cancels alarm & restores heater power
	Manual	Warmer operating at more than 25% power for longer than 15 minutes	Heater reduced to 25% power	Cancels alarm & restores heater power
	Prewarm	Not active	Not active	Not active
High Skin Temp +1°C	Baby	Measured skin temperature higher than set temperature by 1ºC	Heater power disabled	Silences audible alarm only
	Manual	Measured skin temperature higher than 39°C	Heater power disabled	Silences audible alarm only
	Prewarm	Measured skin temperature higher than 39°C	Heater power disabled	Silences audible alarm only
Low Skin Temp -1°C	Baby	Measured skin temperature lower than set temperature by 1ºC	Heater reduced to 25% power	Silences audible alarm & restores heater power
	Manual	Not active	Not active	Not active
	Prewarm	Not active	Not active	Not active
Sensor Disconnect	Baby	Skin sensor unplugged or faulty	Heater power disabled	Silences audible alarm only
	Manual	Skin sensor faulty	Heater power disabled	Silences audible alarm only
	Prewarm	Not active	Not active	Not active
See Manual	All	Software or electronic fault detected	Warmer disabled	No effect
Power Fail	All	Power supply to warmer failed	Warmer disabled	No effect

17. Alarm Summary, Manual Control Models IW920/950/990

Before use

Please read and understand the following alarm summary for baby control models before using the warmer or accessories.

Alarm	Mode	Cause	Effect	Mute Button
Check Baby	Manual	Warmer operating at more than 25% power for longer than 15 minutes	Heater reduced to 25% power	Cancels alarm & restores heater power
		OR measured skin temperature higher than 39°C	Heater power disabled	Silences audible alarm only
		OR skin sensor faulty	Heater power disabled	Silences audible alarm only
	Prewarm	Measured skin temperature higher than 39°C	Heater power disabled	Silences audible alarm only
See Manual	All	Software or electronic fault detected	Warmer disabled	No effect
Power Fail	All	Power supply to warmer failed	Warmer disabled	No effect

18. Alarm systems

WARNING

See Alarm Systems on page 3-10 for full details of alarm systems, possible causes and recommended action.

19. Alarm verification

NOTE:

- See page 3-12 for procedures to verify operation of alarms.
- All alarms are indicated by a flashing red light and audible alarm, except for See Manual which may use a flashing or continuous light.

20. Disabled low skin temperature alarm

NOTE:

- If the baby's skin temperature is less than the set temperature when Baby mode is first selected, the Low Skin Temperature alarm is disabled for 15 minutes or until the baby skin temperature has warmed up to the set temperature.
- The 15 minute warm-up period enables safe continuous warming of the baby without nuisance alarms.

Chapter 2 - About Your Warmer

1. Application and Description

(a) Introduction

i The Fisher & Paykel infant radiant warmers are specifically designed to provide a controlled source of warmth to babies in the first few weeks of life. The warmers can provide complete care for the newborn baby in delivery through to the critically ill baby in neonatal intensive care.

(b) Models

i The CosyCot™ Infant Warmer combines an integrated bassinet with optional accessories to suit your own particular warming needs.

ii The Mobile Infant Warmer provides truly mobile warming wherever needed.

iii The Wall Mount Infant Warmer provides discrete and convenient space saving warming.

iv

Model	Baby Control	Manual Control
Mobile	IW910	IW920
CosyCot™	IW930 (Series)	IW950 (Series)
Wall Mount	IW980	IW990

(c) Heat control

i In Baby mode, the baby control models provide stable control of the baby's skin temperature by automatically adjusting the heater power to compensate for varying physiological and environmental conditions. This is achieved using a microprocessor which measures and updates the baby's temperature ten times every second.

ii In Manual mode, all warmers provide user-adjustable heater power and the option to monitor the baby's skin temperature using the skin sensor.

iii In Prewarm mode, all warmers provide general alarm free prewarming of the heater and environment above the warmer mattress.

(d) Skin sensor temperature measurement

i The 900IW001 Duosense™ skin sensor measures the baby's skin temperature using two independent sensors. These sensors are continuously compared to ensure accurate and reliable skin temperature measurements. The 900IW001 Duosense™ should be used in conjunction with NC04X DaisyDot™ sensor covers for accurate temperature measurement.

ii Single Patient Use Temperature Sensors– The DaisyBud™ is a combined temperature sensor and cover. The SureSense™ temperature sensor can be used in conjunction with SunSpot™ and DaisyDot™ sensor covers.

The Single Patient Use temperature sensors require a re-usable leash adaptor 900IW003 for operation.

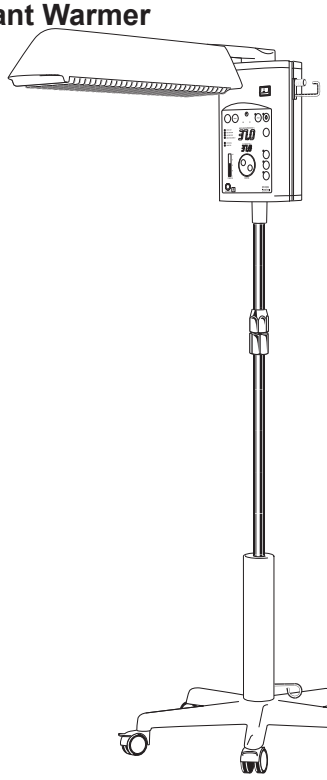
(e) Operating manual

i This operating manual must be read thoroughly and all instructions, warnings, cautions and notes thoroughly understood by personnel working with the warmers and accessories.

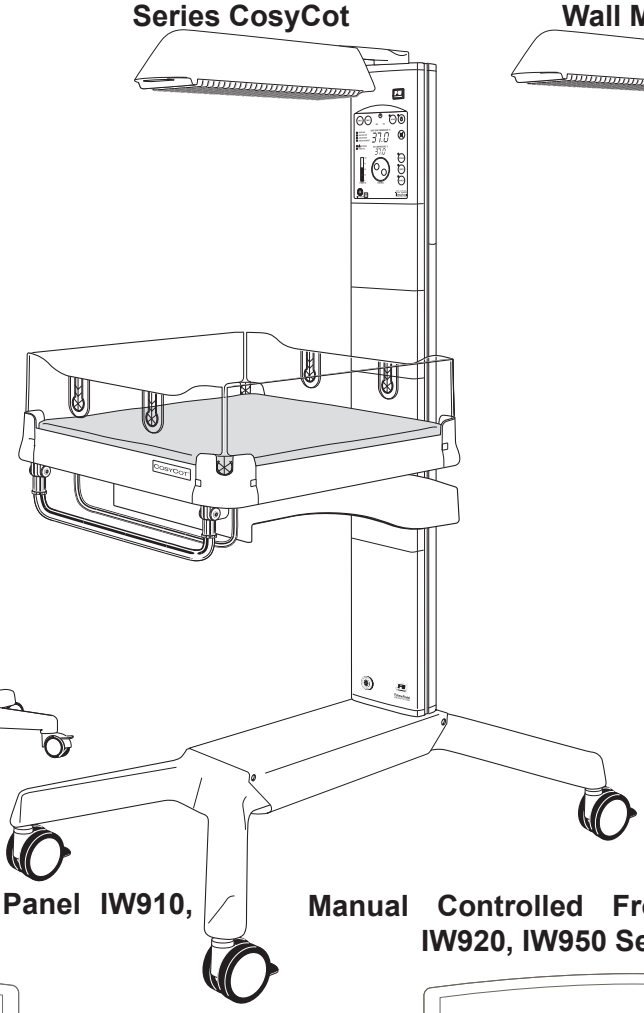
Chapter 3 - Using Your Warmer

1 Warmer Diagrams

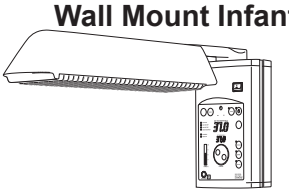
IW910/920 Mobile Infant Warmer



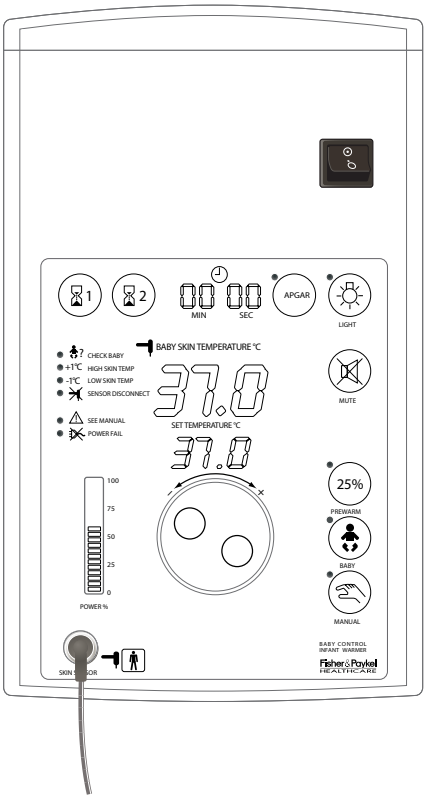
IW930/IW950 Series CosyCot



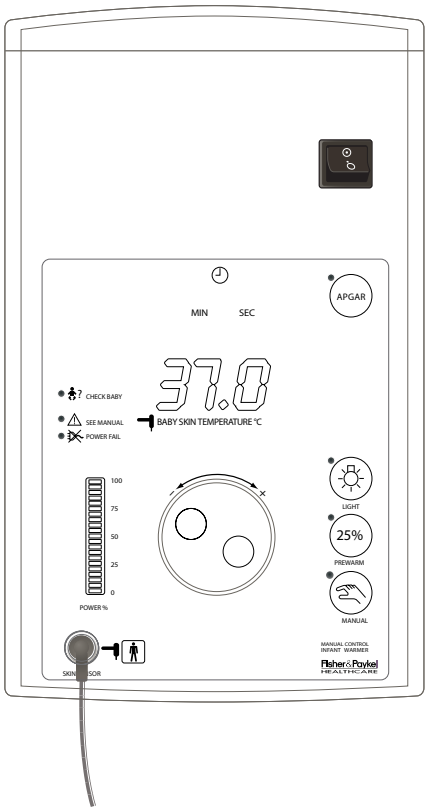
IW980/990 Wall Mount Infant Warmer



Baby Controlled Front Control Panel IW910, IW930 Series and IW980



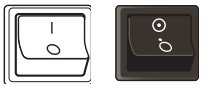
Manual Controlled Front Control Panel IW920, IW950 Series and IW990



2. Controls & Indicators

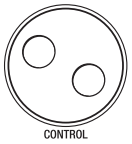
Before use

While reading this section you may find it helpful to look at the diagrams on page 3-1



Power Switch

The warmer starts up automatically in the last mode that was used.



Control Knob

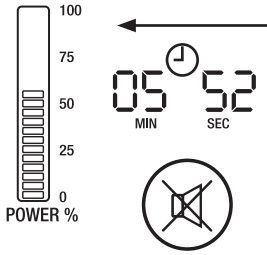
Adjusts set temperature in Baby mode and power level in Manual mode. Adjusts preset countdown time when either the Timer 1 or Timer 2 buttons are held down (Baby control models only).

Baby Skin Temperature Display

Displays the current baby skin temperature when a skin sensor is inserted in Baby mode or Manual mode and the skin sensor is correctly attached to the baby. In Baby mode displays '---' in the event of a Sensor Disconnect alarm. The display switches off when in Prewarm mode or when no skin sensor is inserted in Manual mode.

Set Temperature Display (Baby control models only)

Displays the current set temperature when in Baby mode. The display switches off in Prewarm mode or Manual mode. The set temperature range is from 34.5 °C to 37.5 °C.



Power Display

Displays the current power level in the range 0% to 100% in 5% steps.

Timer Display (Baby control models only)

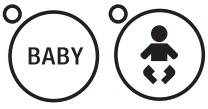
Displays the current time of the Apgar timer, Timer 1 or Timer 2 when they are active.

Mute (Baby control models only)

Pressing this button silences all audible alarms (except See Manual and Power Fail) for 10 minutes. The Check Baby alarm is reset for 15 minutes

Prewarm

Pressing this button selects Prewarm mode and illuminates the green Prewarm mode indicator light. The Power level is preset to 25% to provide alarm and trouble free prewarming of the heater and environment above the warmer mattress before arrival of the baby.



Baby (Baby control models only)

Pressing this button selects Baby mode and illuminates the green Baby mode indicator light. The Power level is automatically controlled according to the baby skin temperature to achieve the desired set temperature.

Manual

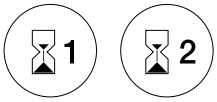
Pressing this button selects Manual mode and illuminates the green Manual mode indicator light. The Power level is adjustable using the Control knob in the range 0% to 100% in 5% steps.

Apgar

Pressing this button starts the Apgar timer and illuminates the green Apgar indicator light. Apgar tones sound at 1, 5 and 10 minutes, with optional tone at 3 minutes. The Apgar timer switches off after 30 minutes. Pressing the button a second time will cancel and switch off the Apgar timer.

Examination Light

Pressing this button switches the Examination Light on and off. The green Light indicator is illuminated when the light is on. If the light is faulty, the warmer will sound a tone and the light indicator will be switched off



Procedure Timer 1 & 2 (Baby control models only)

Pressing this button starts Timer 1 & 2 at the preset count-down time. Pressing the button a second time will cancel and switch off the timer. Holding the button down allows the Timer count-down time to be adjusted with the control knob.

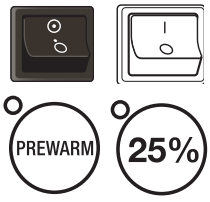
3. Using Prewarm Mode

(a) About Prewarm Mode

i Prewarm mode provides alarm and trouble free prewarming of the heater and environment above the warmer mattress before arrival of the baby.

ii Prewarm mode should be selected at least 5 minutes before the baby is placed on the warmer. Prewarm mode may also be used to provide low power background heating when required.

(b) How to use Prewarm Mode



i Press the Power On/Off switch to the On position. The warmer starts up automatically in the mode that was last used.

ii Select Prewarm mode by pressing the Prewarm button. The Power level is preset to 25%.

iii The warmer will now operate continuously at the preset power level without any nuisance alarms (except if temperature sensor > 39°C).

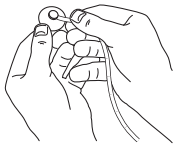
(c) Prewarm

i *NOTE:*

Prewarm mode maintains the total infrared irradiance level at the mattress surface below 10 mW/cm^2, as prescribed in **IEC 60601-2-21**, "Particular requirements for the safety of infant radiant warmers".

4. Placing the Skin Sensor

(a) How to place the skin sensor



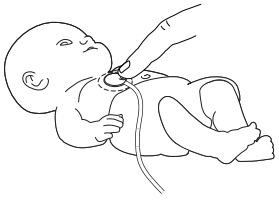
i Gently clean and dry the baby's skin where you intend to place the skin sensor.

ii Remove the backing paper from the sensor cover.

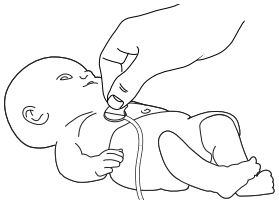
iii Place the coloured side of the skin sensor in the centre of the adhesive side of the sensor cover as shown.

iv Place the skin sensor and sensor cover against the baby's skin in the desired location.

v Gently press and hold the edges of the sensor cover to allow the hydrogel adhesive to adhere to the baby's skin.



(b) How to remove and resite the skin sensor



i Gently lift up the edge of the sensor cover. If required moisten the edges of the sensor cover using a cotton swab dampened with sterile water

ii Gently peel the sensor cover and skin sensor from the skin surface.

Take care not to pull directly on the skin sensor wire.

iii Reposition the sensor cover and skin sensor on the baby.

iv Gently press and hold the edges of the sensor cover to allow the hydrogel adhesive to adhere to the baby's skin.

(c) Clinical procedures

NOTE:

- To ensure the continued comfort of the baby, avoid pressing directly on the skin sensor.

(d) Skin sensor & sensor cover or DaisyBud™ NC06X

WARNING

⚠ **The warmer cannot measure or control the baby's skin temperature if the skin sensor is not correctly positioned on the baby or a reflective sensor cover is not used.**

⚠ **Use only the 900IW001 DuoSense™ , NC06X SureSense™ or NC02X DaisyBud™ skin sensors to measure the baby's skin temperature.**

⚠ **Regularly check that the skin sensor and sensor cover remain correctly positioned on the baby.**

⚠ **Ensure that the skin sensor is always in direct contact with the baby's skin.**

⚠ **Never place an obstruction between the heater and the skin sensor other than a reflective sensor cover.**

⚠ **Heating is obstructed if the baby is wrapped in a blanket which comes between the heater and the skin sensor.**

⚠ **Do not use an axillary or rectal temperature sensor measurement to control baby skin temperature. Use of an axillary or rectal temperature sensor measurement to control baby skin temperature can result in over-heating or under-heating of the baby.**

(e) 900IW001 DuoSense™ skin sensor

CAUTION

- Ensure the skin sensor is only removed from the controller by grasping the plug at the front panel. Ensure excessive strain is not placed on the sensor lead either during use, cleaning or inspection.

(f) NC06X DaisyBud™ and NC02X SureSense™ temperature sensors

CAUTION

- The single patient use temperature sensors are interfaced to the warmer via a Reusable Adaptor 900IW003. Take care not to put excessive strain on the leash.

5. Using Baby Mode

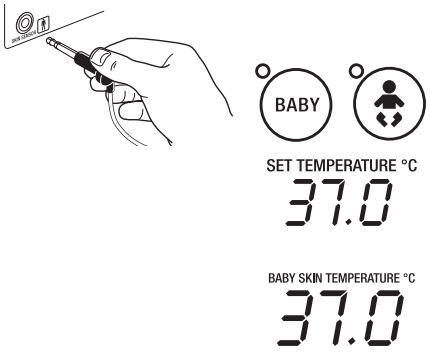
(a) About Baby mode

i Baby mode provides stable control of the baby's skin temperature by automatically adjusting the heater power to compensate for varying metabolic and environmental conditions.

(b) Before you begin

i See Using Prewarm Mode on page 3-3, Placing the Skin Sensor on page 3-3, and Alarm System Verification on page 3-12.

(c) How to use Baby mode



i Push the skin sensor plug firmly into the front panel socket or plug the electrical connector of the single patient use temperature sensors into the reusuable adaptor 900IW003.Push adapter firmly into socket.

ii When the baby arrives, place on the warmer mattress and correctly attach the skin sensor.

iii Select Baby mode by pressing the Baby button.

iv Set the desired skin temperature between 34.5°C and 37.5°C by turning the control knob on the front panel. The set temperature is displayed above the control knob.

v With the skin sensor plug correctly inserted into the front panel socket and the skin sensor correctly positioned on the baby, the baby's skin temperature is displayed above the control knob.

The warmer will now automatically adjust the heater power to stabilise the baby's skin temperature at the desired set temperature.

(d) Clinical condition

WARNING

⚠ **Independent monitoring of temperature is essential for any baby under an infant radiant warmer.**

⚠ **A warmer cannot differentiate between hypothermia (low skin and low core temperature), and fever (low skin and high core temperature). Ensure the clinical condition of the baby is regularly reviewed.**

(e) Disabled low skin temperature alarm

NOTE:

- If the baby's skin temperature is less than the set temperature when Baby mode is first selected, the Low Skin Temperature alarm is disabled for 15 minutes or until the baby's skin temperature has warmed up to the set temperature.
- The 15 minute warm-up period enables safe continuous warming of the baby without nuisance alarms.

(f) Warm-up time

NOTE:

- The baby's weight, age, clinical condition, and other metabolic and environmental factors, will affect the time required to stabilise at the desired set temperature.

(g) Temperature adjustments

NOTE:

- Allow 5 to 10 minutes for the baby's skin temperature to stabilise after set temperature adjustments

6. Using Manual Mode

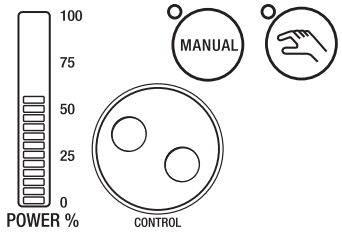
(a) About Manual mode

Manual mode provides user-adjustable heater power, and the option to monitor the baby's skin temperature using the DuoSense™ skin sensor or an independent temperature monitor.

(b) Before you begin

See Using Prewarm Mode on page 3-3, and Alarm System Verification on page 3-12. If monitoring baby's skin temperature see Placing the Skin Sensor on page 3-3.

(c) How to use Manual mode



i Select Manual mode by pressing the Manual button.

ii Set the desired heater power level between 0% and 100% by turning the control knob on the front panel. The heater power level is displayed on the power bar to the left of the control knob.

The baby can now be placed on the warmer mattress, and the warmer will deliver the set heater power.

iii When using Manual mode the baby's skin temperature should be monitored using a skin sensor or an independent temperature monitor.

iv If monitoring is required, place the skin sensor on the baby, and push the skin sensor plug firmly into the front panel socket or plug the electrical connector of the single patient use temperature sensors into the re-usable adaptor 900IW003. Push adaptor firmly into socket.

v With the skin sensor plug correctly inserted into the front panel socket and the skin sensor correctly positioned on the baby, the baby's skin temperature is displayed above the control knob.

(d) Independent monitoring

WARNING

⚠ **Independent monitoring of temperature is essential for any baby under an infant radiant warmer.**

⚠ **When using the warmer in Manual mode continuously monitor the baby's clinical condition and skin temperature using a skin sensor or an independent temperature monitor.**

⚠ **While in Manual mode, the displayed skin temperature is not used to control heater power.**

(e) 15 minute Manual mode alarm

NOTE:

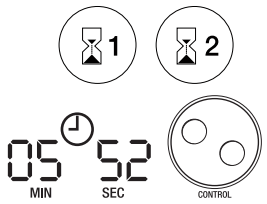
- If the heater power level is above 25% for longer than 15 minutes, the Check Baby and Manual indicators will flash, an audible alarm will sound, and the heater power will be reduced to 25%.
- If the Manual or Mute button is now pressed, the Check Baby and Manual indicators will be extinguished, the audible alarm silenced and the heater power will be restored at the set level.

7. Using the Procedure Timers (Baby Control Models Only)

(a) About the procedure timers

i The two timers provide simple count-down timing of clinical procedures, each sounding a tone at the completion of their preset time period. Both timers can be independently preset from 1 to 99 minutes.

(b) How to set the procedure timers



i Press and hold down either Timer 1 or Timer 2 button.

ii Set the desired count-down time for the chosen procedure timer by turning the control knob on the front panel. The count-down time is shown on the timer display.

iii Release the procedure timer button to start the count-down.

iv Press the procedure timer button again if you wish to cancel the timer.

(c) Timer memories

NOTE:

- Each procedure timer will remember its own count-down time until reset with a new count-down time period.
- Only one procedure timer can be active at any time.

(d) How to use the procedure timers

i Press the desired timer button to start the count-down period.

ii Press the same timer button again if you wish to cancel the timer.

(e) Timer completion

NOTE:

- At the end of the time period the procedure timer will produce alarm tones, flash the timer display for 30 seconds then switch off the display.

8. Using the Apgar Timer

(a) About the Apgar timer

i The Apgar timer provides easy timing of Apgar scores. Apgar tones sound at 1, 5 and 10 minutes, with optional tones at 3 minutes. The Apgar timer switches off after 60 minutes.

(b) How to use the Apgar timer

i Press the Apgar button to start the Apgar timer.

ii Press the Apgar button again if you wish to cancel the Apgar timer.

9. Using the Examination Light

(a) How to use the light

i Press the Light button to switch on the light.

ii Press the Light button again to switch off the light.

(b) Light faulty

NOTE:

- If the light is faulty or fails during use, the warmer will sound a tone and the Light indicator will be switched off. Please refer to the IW900 Series Infant Warmer Technical Manual for servicing information (pn 185 041 130).

10. Using the CosyCot™ Bassinet - IW930/950 Series

(a) About the bassinet

i The bassinet provides a support platform for the mattress, which in turn provides a comfortable and thermally insulated surface for nursing and caring for the baby. The bassinet can be continuously adjusted from -10° to +10°, to achieve Trendelenburg and Fowler type positions.

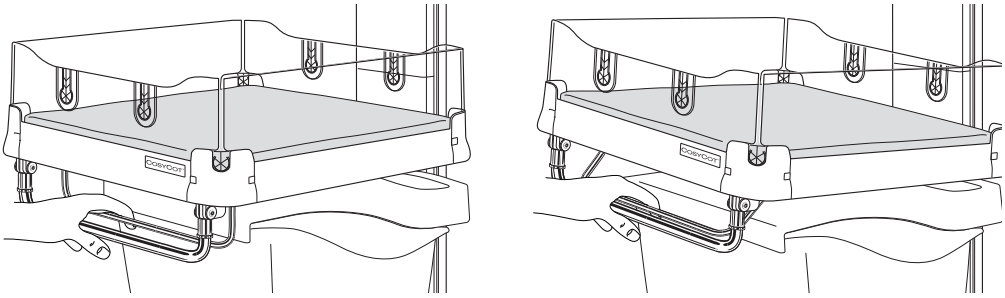
(b) How to tilt the bassinet

i Grip the lever beneath the front of the bassinet with both hands and squeeze together to unlock the bassinet tilt mechanism.

ii Tilt the bassinet to desired position from -10° to +10°.

iii Release lever to lock the bassinet in new position.

iv Horizonal position is found by unlocking tilt mechanism and adjusting tilt until central detente is felt.



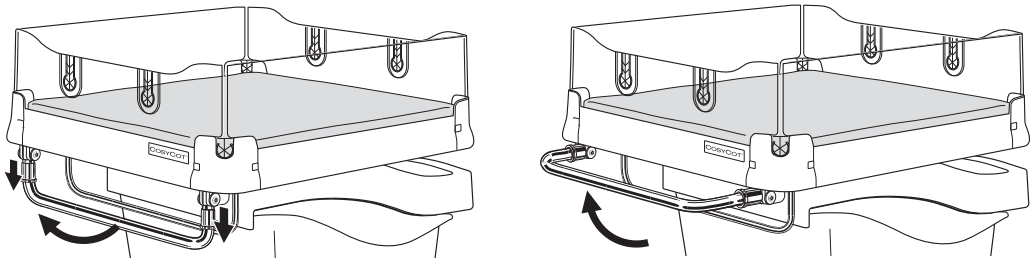
(c) How to transport the bassinet

i Ensure the bassinet side panels are locked into position before transporting.

ii Check the castor wheels are not locked.

iii Locate the transport handle beneath the front of the bassinet

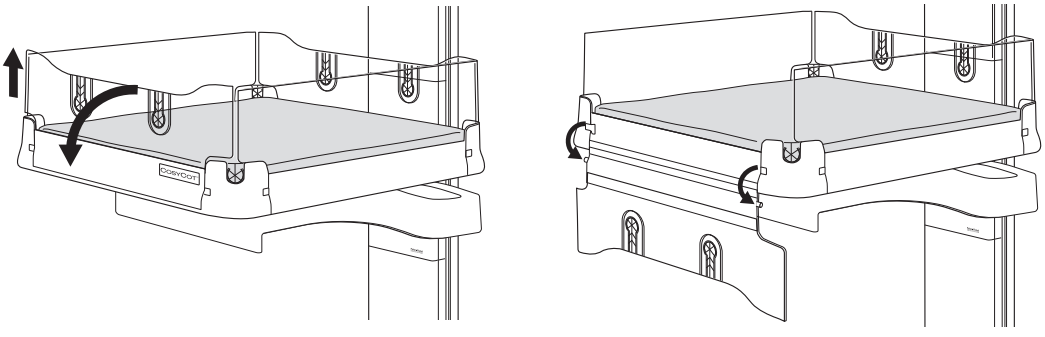
iv Pull down the spring loaded collars at the sides of the handle and re-orient the transport handle to the horizontal and release the collars to lock the handle into position.



(d) How to use the lift and fold-down sides

i To open the lift and fold-down sides:

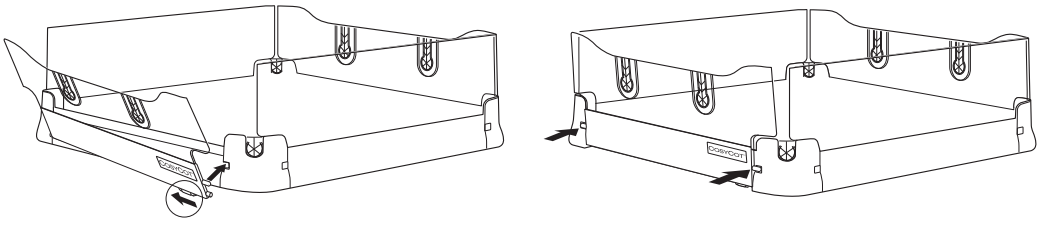
- Lift the top of the side panel and fold down over the edge of the bassinet.



ii To close the lift and fold-down sides:
- Fold up the side panel and lift over the recess to engage the side panel to the bassinet.

iii To remove a side panel:
- Lift and retract the moveable pin by operating the latch and slide out the fixed pin.

iv To replace a side panel:
- Engage the fixed pin in the lower recess, retract the moveable pin and release into the lower slot.



(e) Bassinet Tube holders

i The CosyGrip™ tube holders located in the rear and front panels are designed to accommodate cables and tubing up to 22mm in diameter. The CosyGrip™ tube holders are designed to hold tubes in place and can be removed for cleaning. Using the CosyGrip™ tube holders restricts the rear and front panel ability to be lowered.

ii The CornerGrip™ tube holders located in the four corners of the bassinet have been designed to accommodate cables and tubing up to 15mm in diameter. The lift and fold down sides do not effect tubes and cables in the CornerGrip™ tube holders.

(f) Bassinet

WARNING

⚠ **Maximum bassinet loading is 10 kg (22 lb)**

⚠ **Ensure the bassinet is level and side panels are locked into position before transport. Use transport handle and ensure the drawer is in the central position.**

⚠ **Do not move the warmer by pushing or pulling on the bassinet side panels. This action may lead to the deterioration and breakage of the components that act as a safety barrier around the baby.**

⚠ **Tilting the bassinet from the horizontal position can affect warmer performance by altering the heat distribution across the bassinet mattress.**

⚠ **Inspect all tubes or wires connected to the baby before and after tilting bassinet. Tilting or moving the warmer bassinet can pull on tubing or leads.**

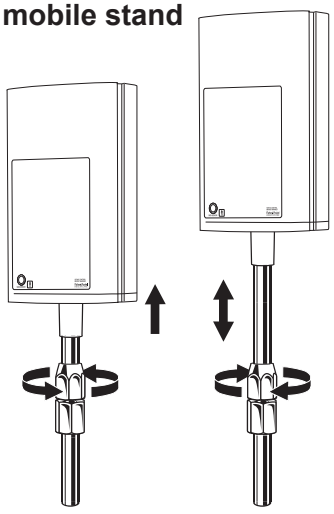
⚠ **Do not leave the baby unattended in the bassinet when the side panels are folded down.**

11. Raising and Lowering the Mobile Stand - IW910/920

(a) About raising & lowering the mobile stand

i The mobile stand allows the heater to be easily raised or lowered to the correct height of 68cm above beds, bassinets or theatre and examination tables of various heights above the floor.

(b) How to raise or lower the mobile stand



i Grip the lower half of the mobile stand and loosen the locking nut.

ii Observe the height of the bassinet, cot or examination table on the scale on the lower half of the mobile stand.

iii Raise or lower the heater head and controller until the same height is shown just above the locking nut.

iv Tighten the locking nut. The mobile warmer is ready for use.

(c) Transport

CAUTION

- Ensure the mobile stand is adjusted to the lowest position before transport.

12. Alarm Systems

(a) About alarm systems

i Check Baby

CHECK BABY

The following section describes the alarm systems, possible causes, and suggested actions.

Baby control only

The red indicator light will flash, an audible alarm will sound, and the heater power level will be reduced to 25% if the warmer has been operating either in Baby mode at 100% power or in Manual mode at more than 25% power, for longer than 15 minutes. Pressing the Mute or relevant mode button cancels the alarm and recommences heating.

	Possible Cause		Action to Take
1	In Baby mode: The skin temperature measurement may be incorrect due to skin sensor placement.	1	Check the skin sensor placement, then press the Mute or Baby button to re-commence heating.
2	In Manual mode: The heater power was set higher than 25% for longer than 15 minutes.	2	Adjust the heater power to less than 25%, or press the Mute or Manual button to re-commence heating.

ii High Skin Temp

HIGH SKIN TEMP +1°C

Baby control only

The red indicator light will flash, an audible alarm will sound, and the heater will be disabled if the baby skin temperature is greater than the set temperature by 1°C. Pressing the Mute button silences the audible alarm for 10 minutes, while the red indicator light will remain flashing until the baby skin temperature is within 1°C of the set temperature. In Prewarm or Manual mode this alarm will occur if the baby skin temperature is greater than 39°C.

	Possible Cause		Action to Take
1	The set temperature may have been adjusted lower by more than the alarm limit.	1	Press the Mute button and wait for the baby's skin temperature to fall.
2	The baby may be experiencing heat stress.	2	Check the baby's clinical condition.

iii Low Skin Temp

LOW SKIN TEMP -1°C

Baby control only

The red indicator light will flash, an audible alarm will sound, and the heater power level will be reduced to 25% if the baby skin temperature is less than the set temperature by 1°C. Pressing the Mute button silences the alarm for 10 minutes and re-enables heater power, while the red indicator light will remain flashing until the baby skin temperature is within 1°C of the set temperature. This alarm is not active in Prewarm or Manual mode, and is disabled during initial warm-up for 15 minutes, or until the baby skin temperature has warmed up to the set temperature.

	Possible Cause		Action to Take
1	The set temperature may have been adjusted higher by more than 1°C	1	Press the Mute button and wait for the baby's skin temperature to rise.
2	The skin sensor and cover may have been accidentally covered.	2	Remove the object which is covering the skin sensor
3	The skin sensor may have been detached or is incorrectly positioned.	3	Check the skin sensor and reattach or reposition as required.
4	The baby may be experiencing cold stress.	4	Check the baby's clinical condition.

iv Sensor Disconnect

SENSOR DISCONNECT

Baby control only

The red indicator light will flash, an audible alarm will sound, and the heater will be disabled if the skin sensor is either removed or faulty. Pressing the Mute button silences the alarm for 10 minutes, while the red indicator light will remain flashing and the heater remains disabled until the skin sensor is plugged in or replaced. This alarm does not indicate if a sensor is removed in Manual mode, and is not active in Prewarm mode.

	Possible Cause		Action to Take
1	The skin sensor may not be connected to the warmer.	1	Check the connections of the skin sensor plug into the front panel socket or the connection between the single use skin sensor and the adaptor 900IW003 and the adaptor socket connection.

2	The skin sensor may be faulty.	2	Replace the skin sensor. Have the suspect skin sensor checked by a technician.

v See Manual

Baby control only

If this indicator is flashing or illuminated continuously a fault has been detected or the overheat protector in the heater has tripped. For both faults the warmer should be immediately disconnected from the wall supply outlet, the baby relocated onto another warmer, and the unit sent for servicing.

	Possible Cause		Action to Take
1	A software fault has been detected.	1	Send warmer for servicing.
2	An electronic fault has been detected.	2	Send warmer for servicing.

vi Power Fail

Baby control only

The red indicator light will flash and an audible alarm will sound if the power supply to the warmer has failed. If the power on/off switch is on, then either the wall supply outlet has been switched off, or the warmer power cord has been unplugged from the wall supply outlet.

	Possible Cause		Action to Take
1	The wall supply to the warmer has failed.	1	Turn the power switch off to cancel the audible and visual alarms. We recommend providing an alternative source of warmth for the baby.
2	The wall supply to the warmer has been switched off accidentally.	2	Turn the wall supply switch on to restart the warmer.
3	The power cord has been accidentally unplugged while the warmer is in use.	3	Plug the cord back into the wall supply outlet.

(b) Alarm system verification

The following procedure can be used to verify the operation of auditory and visual alarms.

Before commencing ensure:

- A baby is not present on the warmer.
- There is no skin sensor connected into the front panel socket.
- The power cord is plugged into an appropriate wall supply outlet.

i Press the Power On/Off switch to the On position

ii ***Check*** the power-on alarm sounds briefly

iii **<u>For a Baby control model:</u>**

Check the indicator lights for the Check Baby, High Skin Temp, Low Skin Temp, and Sensor Disconnect alarms are illuminated briefly.

<u>For a Manual control model:</u>

Check the indicator light for Check Baby is illuminated briefly.

iv Change to Prewarm mode.

v Unplug the power cord from the wall supply.

vi ***Check*** the Power Fail indicator light flashes and audible alarm sounds.

vii Press and hold the Prewarm button. Plug the power cord into the wall supply outlet.

viii ***Check*** the warmer re-starts correctly, the See Manual indicator light flashes and audible alarm sounds.

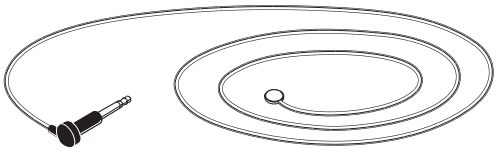
ix Press the Power On/Off switch to the Off position.

If steps ii, iii, vi and viii produce the desired results, the warmer can be returned to use. If any of steps ii, iii, vi or viii do not produce the desired results, then send the warmer for servicing.

Chapter 4 - Accessories

1. Skin Sensors & Sensor Covers

(a) About the 900IW001 DuoSense™ skin sensor



i The 900IW001 DuoSense™ skin sensor measures the baby's skin temperature using two independent sensors that are continuously compared to ensure accurate and reliable skin temperature measurements.

(b) About the NC02x SureSense™ and NC06x DaisyBud™

i The Single Patient Use temperature sensors measure the baby's skin temperature using a single thermistor rated to +/- 0.1°C accuracy and good skin surface area contact. The NC06X DaisyBud™ provides optimal contact between the baby's skin and temperature sensor by enclosing the temperature sensor within the hydrogel of the sensor cover.

(c) About the sensor covers

i The reflective sensor cover firmly yet gently attaches the skin sensor to the baby while its reflective and insulating nature shields the skin sensor from external sources of heat.

ii The sensor covers are single-baby multi-use items, which can be placed, gently removed, then re-wet before re-use.

iii Each sensor cover pack contains 10 sensor covers.

2. Electric Elevator Module

Before use

Please read and understand all instructions before using the electric elevator module and related accessories with the warmer.

(a) About the electric elevator module

i The electric elevator modules raise or lower the warmer bassinet from 87 to 98cm (34.3"- 38.6") at the touch of a button.

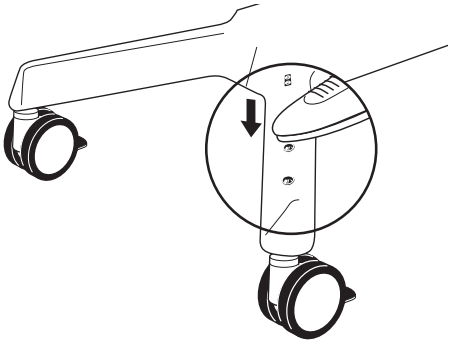
Different voltage options available

(b) Using the electric elevator module

i Ensure isolating switch is on.

ii To raise the bassinet press the up ⬆ button on the right-hand leg.

iii To lower the bassinet press the down ⬇ button on the right-hand leg



(c) User

WARNING

⚠ **Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

⚠ **Ensure that all limbs are clear of moving parts under the base and legs while operating the electric elevator.**

⚠ **Be careful not to dislodge feeding tubes/respiratory lines from the patient when operating the electric elevator base.**

⚠ **Unlock the front wheels before raising or lowering the bassinet.**

(d) Operation

CAUTION

- Ensure there is adequate clearance above and below the warmer before raising or lowering the electric elevator module.
- Do not stand on the base and legs or climb onto any part of the warmer.
- To avoid overheating the electric elevator motor, do not continuously raise or lower the warmer bassinet.
- Avoid pulsing the up and down buttons.

3. Gas System Accessories

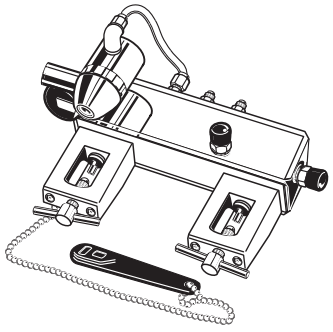
Before use

Please read and understand these instructions before using the gas system accessories and related accessories with the warmer.

(a) About gas system accessories

i The 900 series gas system accessories provide reliable gas supply from standard gas cylinders or regulated hospital pipeline systems.

(b) Gas supply modules



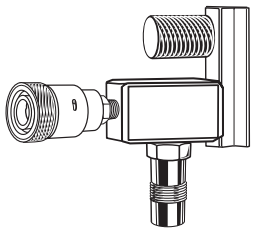
i The 900IW100 series Gas Supply Modules combine the flexibility of dual gas cylinders and hospital pipeline system gas inlets and outlets with readily accessible panel mounted flowmeter modules.

ii The Gas Supply Modules use pin-indexed cylinders and are available with DISS, NIST, and Australian gas fittings.

- The Flowmeter Modules are available with either two oxygen flowmeters or one oxygen and one air flowmeter. Please refer to page 4-5 for further Flowmeter Module information.

  Different gas and inlet/outlet options available

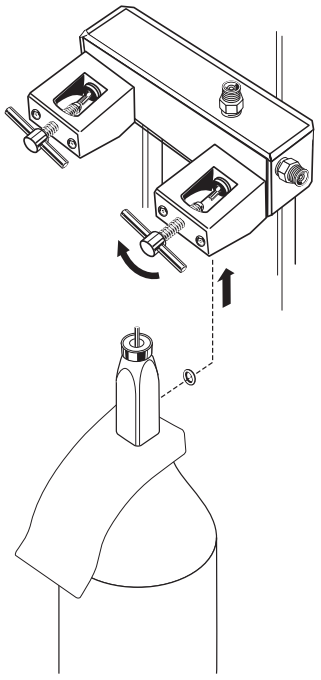
(c) Gas accessory blocks



i The 900IW150 series Gas Accessory Blocks provide a single oxygen or air gas outlet from either a Gas Supply Module or regulated hospital pipeline system. The single gas outlet can be used for flowmeters or venturi suction units.

ii The Gas Accessories are available with DISS, NIST, and Australian gas fittings.

(d) Gas cylinder installation



To install gas cylinders in either the Gas Supply Module or Gas Cylinder Block:

i Check and clear all connections of oil, grease and foreign material

Ensure damaged connections are correctly serviced before use.

ii Turn the tee handle counter-clockwise until the tip of tee screw is almost flush with the inside face of the cylinder yoke. Remove the cylinder dust cap if fitted.

iii Carefully open then immediately close the cylinder valve to blow any foreign debris from the cylinder valve outlet. During this operation ensure you are standing next to the cylinder and not in front of the cylinder valve.

iv Ensure the valve is closed without excessive force

v Remove and replace the cylinder gasket from the yoke nipple. Ensure fresh gaskets are used for every new cylinder.

vi Reusable Bodock washer does not need replacing each change.

vii Carefully install the cylinder over the yoke nipple and index pins. Turn the tee handle clockwise to hold the cylinder firmly in place. Avoid over-tightening the tee handle.

viii SLOWLY open cylinder valve one full turn. The gas supply module is now ready for use.

The Gas Supply Module with dual oxygen cylinders uses individual check valves to allow replacement of an empty cylinder while the other cylinder is in use. Promptly replace empty cylinders.

Before, during and after use

WARNING

⚠ **Ensure the cylinder valves are closed when the hospital pipeline systems are in use. Supply pressures may become equal and if used simultaneously, cylinder supplies could be exhausted leaving no emergency backup supply.**

⚠ **Compressed gas cylinders can become hazardous projectiles if the gas is released rapidly. To prevent damage from shock or impact, the cylinders must be securely fastened.**

4. Flowmeter Modules

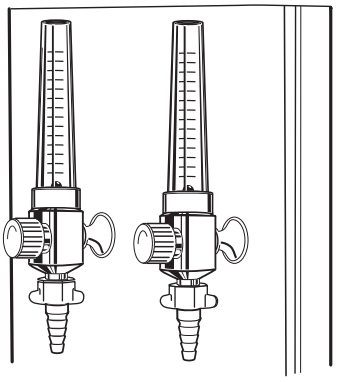
Before Use

Please read and understand all instructions before using the flowmeter modules and related accessories with the warmer.

(a) About flowmeter modules

i The 900IW110 oxygen flowmeter module and 900IW111 Oxygen/Air Flowmeter Module provide an accurately controlled flow of oxygen/air (0 to 15 L/min).

(b) Using the flowmeter modules



i Before use always check the oxygen and/or air cylinder and the hospital pipeline supply to the warmer.

ii Check the flowmeter nipple is hand-tight.

iii Connect the patient supply tube to either of the flowmeter nipples using firm hand pressure.

iv Connect the other end of the patient supply tube to the intended device, for example, a Fisher & Paykel humidifier, Neopuff™ Infant Resuscitator, headbox, or oxygen therapy system.

v Adjust the flowmeter valve to the desired flow rate. Ensure all gas supply and patient lines are regularly inspected for possible leaks during use.

(c) Oxygen administration

WARNING

⚠ **Oxygen-enriched gas has been found to increase the risk of retrolental fibroplasia (retinopathy of prematurity). Use arterial blood gas measurement for regulation of inspired oxygen concentration when oxygen-enriched gas is necessary.**

5. X-Ray Tray Module

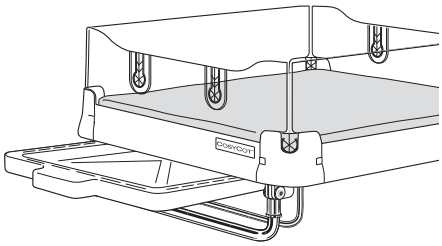
Before use

Please read and understand all instructions before using the x-ray tray and related accessories with the warmer.

(a) About the x-ray tray

i The 900IW205 x-ray tray combines a non-slip surface with a grid reference label for accurate placement of the x-ray cassette beneath the bassinet without disturbing the baby. The heater can be rotated to the left or right to allow access for x-ray equipment.

(b) Using the x-ray tray



i Grasp the x-ray tray handle beneath the front of the warmer bassinet, and pull out the cassette drawer.

ii Align the x-ray cassette in the drawer using the grid reference label on the bassinet side panels and drawer base.

iii Push the cassette drawer back beneath the warmer bassinet. A ‘click’ will be felt when the drawer is latched.

iv Rotate the heater out of the way, position the x-ray machine and take the x-ray.

WARNING

⚠ **Limit the load placed on the x-ray to 2kg to avoid tipping hazard.**

⚠ **Never place a baby on the x-ray cassette tray.**

6. Mounting Accessories

Before use

Please read and understand all instructions before using the mounting accessories with the warmer.

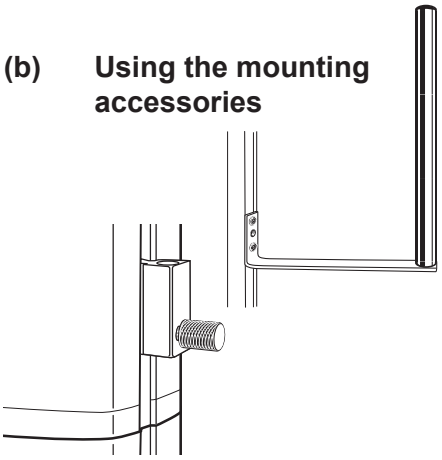
WARNING

⚠**Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

(a) About the mounting accessories

i The mounting accessories provide various methods of attaching warmer accessories and alternative supplier products onto the warmer.

(b) Using the mounting accessories



i 900IW301 Short Mounting Pole & 900IW302 Long Mounting Pole

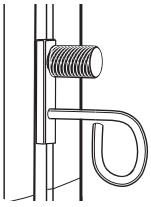
These accessories are used to mount Fisher & Paykel humidifiers, oxygen/air blenders, and syringe pumps onto the warmer column. The Short Mounting Pole is shown The Long Mounting Pole extends the full length of the column.

ii 900IW303 Side Shelf Mounting Block

This accessory is used to mount the side shelves onto the warmer column.

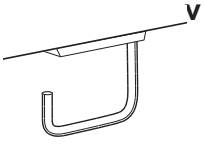
iii 900IW314 Dovetail Channel Rail Bracket

This accessory is used to mount the neoBLUE®mini onto the warmer column.



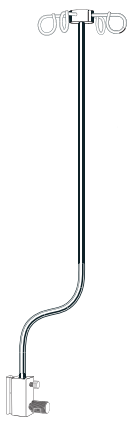
iv 900IW305 Cable/Hose Hook

This accessory provides an adjustable point for convenient, tidy storage of power cables, oxygen and air hoses, especially useful during transportation. Maximum loading 5kg (11lb)



v 900IW306 Accessory Hook

This accessory can be used to mount medication and irrigation bags, stethoscopes, cables, clipboards and catheters on the warmer column and from beneath the warmer bassinet. Maximum loading 2kg (4.4lb).



vi 900IW313 IV Pole bent Quad Hook

This accessory can be used to mount medication and irrigation bags at elevated heights to provide constant feed systems. It can be mounted on the same side as a long mounting pole.

7. Storage Accessories

Before use

Please read and understand all instructions before using the storage accessories with the warmer.

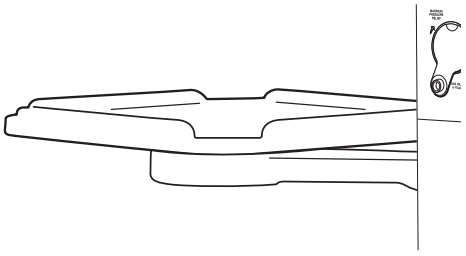
WARNING

⚠ **Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

(a) About the storage accessories

i The storage accessories provide various methods of storing warmer accessories and alternative supplier products onto the warmer.

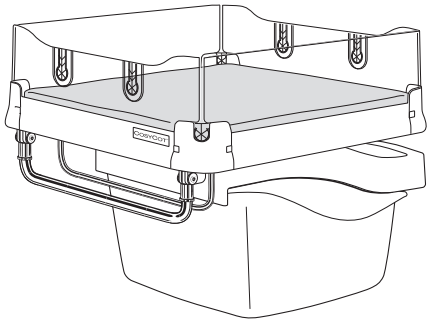
(b) Using the storage accessories



i 900IW401 Side Shelf

- This accessory provides an easily positioned surface for monitors, syringe pumps and other large items. The side shelf attaches to the IW930 or IW950 using the supplied 900IW303 shelf support block.
- To install and use the Side Shelf:
- Slide the shelf support block into the column mounting slot and tighten the lock knob at the desired side shelf height.
- Guide the side shelf pin into the shelf support block.
- Place items on the side shelf and position as required.

  Maximum loading 15kg (33lb).



ii 900IW408 Storage Drawer System

- The storage drawer system consists of a slide out drawer system, which provides convenient and easy storage for larger items such as sheets, blankets and diapers. Inside the main storage drawer is a multipurpose tray that provides storage for smaller items such as catheters, swabs and syringes.

WARNING

⚠ **Do not exceed the maximum total storage drawer loading of 7 kg (15.4lb).**

8. Uninterruptible Power Supply (UPS) for transport warmer

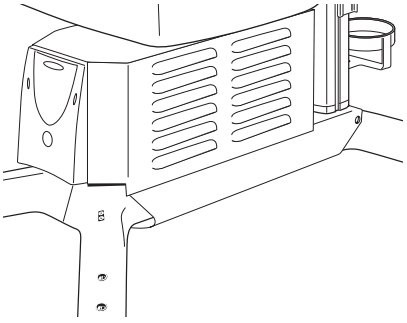
Before use

Please read and understand these instructions and refer to the Powervar User Guide before using the uninterruptible power supply and related accessories with the warmer.

WARNING

⚠ **Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

(a) About the UPS transport system



i The UPS provides power during transportation and may be fitted to an IW930/IW950 Series. Two components are required to provide an uninterruptible power supply (UPS), the UPS itself and a mounting kit 900IW312 to secure it to the CosyCot™ Infant Warmer. The UPS provides constant warming for up to 10 minutes on full power and 22 minutes at 50% power with fresh batteries.

NOTE:

- This time is given as a guide only and does not apply if any other electrical loads are placed on the warmer (i.e. phototherapy) or if the inspection lamp is left running during transport.
- The UPS uses two VRSLA batteries.
- The batteries have a finite service life-time of approximately 100-150 transports providing approximately 10 minutes at 100% power.
- The batteries capacity to store energy diminishes over the service lifetime of approximately 12 months.
- A reduction in the length of run time will be apparent as the batteries' capacity diminishes.
- The batteries should be replaced at annual preventative maintenance checks to ensure best transport results.

(b) Setup of the Transport Warmer

Setting up the Warmer

i At all times the warmer must be plugged into one of the six power outlets at the rear of the UPS.

ii The UPS should in turn be plugged into a wall supply when not transporting.

iii Ensure that the warmer is plugged into the power supply to charge the UPS battery.

iv It takes at least 8 hours to fully charge the battery.

v Note that the use of the UPS before charging has completed will lead to reduced runtime.

vi In the longer term this will also lead to a reduced service lifetime for the batteries.

Turning on the Warmer

i The UPS will not immediately power up once plugged into the wall supply.

ii In order to start the UPS the power button at the front of the unit must be held down for 3 seconds.

iii The UPS will emit a tone to indicate that it is operational.

iv A low battery LED and audible alarm will sound if the battery has insufficient charge for a transport.

v Once the UPS has been turned on it should now be possible to the turn the warmer on.

vi The warmer will power up as normal.

(c) Using the Warmer for Transport

i **Immediately before transport**

- Ensure that the inspection lamp is off.
- Ensure that any peripheral devices that may draw power from the warmer are either turned off or disconnected.
- Remove the cable that connects the UPS to the wall power supply.
- The UPS should start emitting an audible alarm to indicate that the UPS is now on battery power.

During Transport

i As the battery reserves decrease, the frequency of the audible alarm increases, and a battery status LED display decreases from 5 segments to none.

ii As soon as the load is applied it drops to 4 segments and then drops an additional segment at approximately 3 minute time intervals.

iii This gives continuous feedback of how much longer you have to transport with warmer power.

iv The cable that connects the UPS to the wall supply should be immediately plugged back into the wall upon arrival at the transport destination.

v The audible alarm should cease as soon as this done.

vi Check the warmer display to ensure that the infant warmer is running.

After transport

i The warmer must be left connected to the wall for at least 8 hours, before it is returned to transport service.

ii This will ensure maximum transport runtime and preserve battery life.

NOTE:

- The UPS makes an audible noise when running on battery power only.
- Once at final destination plug the warmer back into the power supply to recharge the battery.

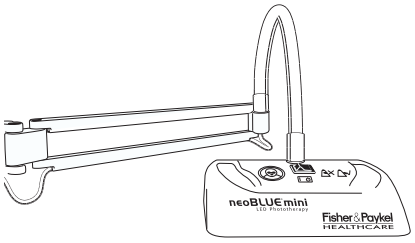
CAUTION:

- CosyCot™ will not operate from mains without UPS switched on.
- Do not cover louvers on shroud.
- Do not operate phototherapy lamp when the CosyCot™ is disconnected from mains and is being powered by the UPS.
- The UPS unit weighs 19kg (42 lbs) , care should be taken when lifting or maneuvering the unit.

9. Phototherapy Accessories

Before use

Please read and understand these instructions before using the neoBLUE®mini LED phototherapy system with the warmer.



i About Phototherapy

The 900IW510 – neoBLUE®mini LED phototherapy system provides convenient and effective treatment for hyperbilirubinemia in neonates.

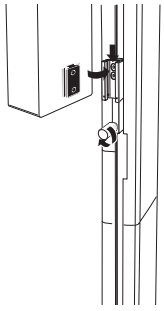
The lightweight plastic enclosure contains light emitting diodes (LEDs) which deliver a narrow band of high intensity blue light 450 – 470nm.

The neoBLUE®mini LED Phototherapy System can be mounted onto either side of the CosyCot™ Infant Warmer column using the Dovetail Channel Rail Bracket 900IW314 or can be mounted to a pole using 900MR030.

(a) How to install the Phototherapy Lamp Head

i Slide the support bracket (900IW314) into either side of the CosyCot™ Infant Warmer column and set to the desired height.

ii Slide the mounting tongue into the support bracket.



(b) Using Phototherapy

For full details on use and service of the neoBLUE®mini LED phototherapy system please refer to Fisher & Paykel Healthcare neoBLUE®mini user manual pn. 185043922 and the Fisher & Paykel Healthcare neoBLUE® mini service manual 185043921.

WARNING

⚠ **This product in intended for use by authorized and qualified personnel who are aware of currently known hazards and benefits of phototherapy for treatment of hyperbilirubinemia.**

⚠ **All personnel must be familiar with the operation of the neoBLUE mini™ phototherapy system before using the device with patients.**

⚠ **Protect baby's eyes and genitals from Phototherapy light.**

⚠ **Do not look directly at the blue light.**

⚠ **Ensure the neoBLUE®mini LED phototherapy unit is securely fitted to the mounting bracket.**

⚠ **Only qualified personnel should carry out service and maintenance procedures.**

CAUTION:

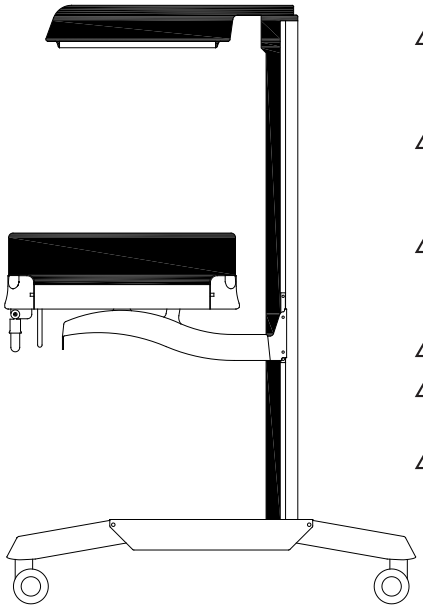
- US Federal law restricts this device to sale by or on the order of a physician.
- Do not autoclave or gas sterilize any part of the neoBLUE®mini LED Phototherapy system.
- Do not use solvents or abrasive cleaning solutions for cleaning surfaces of the Phototherapy System. Use of alcohol for cleaning acrylic surfaces can cause grazing and cracking.
- Do not place the neoBLUE®mini LED Phototherapy system directly under the Warmer head.
- Ensure all warmer parts and accessories are checked before returning the device to service.

NOTE:

- To be effective there should be no obstruction between the patient's skin and the therapeutic blue light.
- The phototherapy system does not interfere with the Infant Warmer control.

Chapter 5 - Cleaning & Maintenance

1. Cleaning



Before you begin

WARNING

⚠ **To avoid the possibility of burns when performing cleaning procedures, ensure the warmer is disconnected from the power supply and the heater element is allowed to cool for one hour.**

⚠ **To avoid the possibility of electric shock hazard when performing cleaning procedures, ensure the warmer is disconnected from the power supply.**

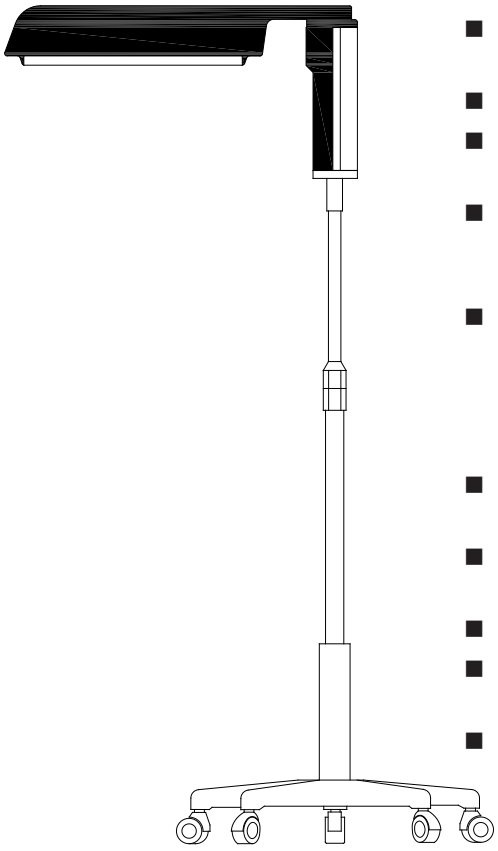
⚠ **If UPS is installed ensure it is turned off prior to cleaning. Do not remove the UPS shroud during cleaning procedures. Ensure no part of the UPS is immersed in any cleaning agent.**

⚠ **Do not allow liquids to seep into electrical housings**

⚠ **Do not allow liquids to collect or enter into any oxygen or air fittings or inlets.**

⚠ **Ensure all oxygen and air supplies are turned off and disconnected from the warmer before performing cleaning procedures. Explosion and fire hazards can exist when performing cleaning procedures in an oxygen-enriched environment.**

(a) General cleaning



i Always follow hospital and local guidelines for cleaning frequencies. Clean the warmer and accessories either weekly or between babies using the following cleaning procedures:

- Before cleaning, remove and discard all used disposable products using the recommended method of disposal.
- Dust all plastic surfaces with a clean damp soft cloth.
- Dust all accessible metal surfaces with a clean soft cloth or paper towel.
- All Surfaces: All surfaces may be cleaned with detergent based solution (maximum 2% in water) ensuring the cleaning agent manufacturer's directions for use are followed.
- Plastic Surfaces highlighted in black (refer to diagram): Do not use alcohol to clean the plastic surfaces highlighted in black. These contain plastic components made from polycarbonate or acrylic. This includes the entire head assembly, bassinet side panels, column cap, and front panel fascias.
- Surfaces NOT highlighted in black (refer to diagram): Alcohol may be used to clean surfaces not highlighted in black.
- Ensure no part of the warmer or accessories are immersed in any cleaning agent.
- Apply the cleaning solution with a clean cloth or sponge.
- Clean all parts of the warmer and accessories at normal room temperature (around 23°C).
- Dry all surfaces after cleaning with a clean soft cloth or paper towel.

ii **Do not use any compounds containing aromatic hydrocarbons, ammonia or amines .**

Chemicals that attack polycarbonate:

Strong Bases	**Ammonium Hydroxide, Sodium Hydroxide, Potassium Hydroxide**
Halogenated Solvents	**Methylene Chloride, Chloroform, Carbon Tetra Chloride**
Ketones	**Acetone, Acetonitrile, Ethyl Acetate, methyl ethyl ketone (MEK)**
Aromatic Hydrocarbons	**Benzene**

CAUTION:

- If your cleaning solution contains any of these compounds then it should not be used on polycarbonate plastics.
- Do not clean the radiant heating element.
- Do not allow excess cleaning solution to seep in between plastic parts where it is difficult to wipe away.

(b) Skin sensors

i Clean the 900IW001 DuoSense™ skin sensor with alcohol, or detergent or soap solution (maximum 2% in water), ensuring the manufacturer's directions for use of the cleaning agent are followed.

ii Apply the cleaning solution with a clean cloth or sponge, and dry all surfaces after cleaning with a clean soft cloth or paper towel.

CAUTION

- Do not autoclave or gas sterilise the 900IW001 DuoSense™ skin sensor.
- Do not pull on the sensor cup or sensor plug during cleaning or drying as the skin sensor may be damaged.
- Ensure the skin sensor is only removed from the controller by grasping the plug at the front panel. Ensure excessive strain is not placed on the sensor lead either during use, cleaning or inspection.

(c) Mattress

i Clean the mattress with an approved and correctly diluted disinfectant-detergent solution, ensuring the manufacturer's directions for use of the cleaning agent are followed.

ii Apply the cleaning solution with a clean cloth or sponge, and dry all surfaces after cleaning with a clean soft cloth or paper towel.

CAUTION

- Do not autoclave the mattress.

(d) Cleaning products

CAUTION

- Do not use solvents or abrasive cleaning solutions for cleaning surfaces of the warmer.
- Do not expose plastic and acrylic surfaces to direct radiation from germicidal lamps. The ultraviolet radiation from these sources can cause crazing and cracking.

(e) After cleaning

CAUTION

- Ensure all warmer parts and accessories are checked before returning the device to service. Refer to relevant sections of this operating manual for directions.

(f) Sterilisation

CAUTION

- Do not autoclave or gas sterilise any part of the warmer.
- For cold sterilisation: Ensure the cold sterilisation agents are safe for use with the relevant warmer surfaces. If in doubt check with supplier.
- For chemical liquid immersion: Some chemicals can be harmful to plastics. If in doubt check with supplier.

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2. Maintenance

Before you begin

WARNING

⚠ **Only qualified personnel should carry out service and maintenance procedures.**

⚠ **To avoid the possibility of burns when performing maintenance procedures, ensure the warmer is disconnected from the power supply and the heater element is allowed to cool for one hour.**

⚠ **To avoid the possibility of electric shock hazard when performing maintenance procedures, ensure the warmer is disconnected from the power supply**

⚠ **Ensure all oxygen and air supplies are turned off and disconnected from the warmer before performing maintenance procedures. Explosion and fire hazards can exist when performing maintenance procedures in an oxygen-enriched environment.**

⚠ **Care should be taken to ensure that the maximum total accessory weight on the warmer does not exceed the maximum specified. Refer to the "Specification for IW93x and IW95x CosyCot™ Infant Warmer" located at the back of this operating manual.**

(a) General

- After any maintenance is completed, ensure the equipment is functioning correctly in accordance with the published performance specifications.
- Refer to Alarm System Verification on page 3-12.
- Ensure only approved replacement parts are used during service and maintenance procedures.
- Please refer to the IW900 Series Infant Warmer Technical Manual (pn 185041130) for servicing information.
- Please contact an authorised Fisher & Paykel representative for further assistance with any servicing or maintenance requirement.

(b) Bassinet & x-ray tray

i The bassinet should be checked annually to ensure reliable operation. The following procedure should be used by your technician:

- Check each bassinet side panel for smooth operation and correct latching. Replace if defective.
- Check x-ray tray module for smooth operation and correct placement of x-ray cassette. Replace if defective.
- Check the operation of the transport handle and release collars.
- Check the operation of the tilt mechanism for smooth movement and that the central détente can be felt.
- Check that the two M8 shoulder bolts, which the bassinet pivots on, are not loose. Tighten if necessary

(c) Base

i The base should be checked at least annually to ensure reliable operation. The following procedure should be used by your technician:

- Check all base fittings are secure. Please refer to the IW900 Series Infant Warmer Technical Manual (pn 185041130) for adjustment information.
- Check the operation and electrical connections of the electric elevator if fitted.
- Check castors rotate freely and castor brakes operate correctly.
- For mobile warmers ensure the stabilizer weight bolt is tight and that the pole is fully engaged into the warmer support bracket.

(d) Heater Head

i At least annually check the heater head swivel is secure.

ii Ensure the head pivot nut is locked/glued in place. Check the swivel movement of head is free and that the central détente can be felt.

(e) Storage Drawers

i Check that the storage drawer system slides from side to side smoothly.

ii Check the plastic catches on each drawer slide for excessive wear or damage. Replace if defective.

(f) After maintenance

CAUTION

- Ensure all warmer parts and accessories are checked before returning to service. Please refer to relevant sections of this operating manual.

Chapter 6 - Troubleshooting

1. General Assistance

(a) About trouble-shooting

The troubleshooting charts provide the user with general situations, possible causes and suggested actions. If these charts cannot assist in solving the particular situation, the warmer should be sent for servicing.

Situation	Possible Cause	Actions to Take
Unable to provide stable control of the baby's skin temperature.	Skin sensor and/or sensor cover poorly attached to the baby.	Correctly re-attach the skin sensor and sensor cover (see page 3-2).
	Heat path between the baby and heater element is obstructed.	Remove heat path obstruction.
	A Low Skin Temp alarm exists, and the Mute button has not been pushed to silence the alarm and re-enable the heater.	Press the Mute button to silence the audible alarm and re-enable the heater.
	Warmer is operating in Manual or Prewarm mode.	Baby control models: Change to Baby mode, and adjust set temperature as desired. Manual control models: Change to Manual mode, and adjust heater power to achieve desired baby's skin temperature.
Baby's skin temperature readings do not appear correct.	Poor connection between skin sensor and the warmer	Push the skin sensor plug firmly into the front panel socket or the connector into the adaptor.
	Skin sensor faulty.	Check skin sensor performance and replace if defective.
	Skin sensor or sensor cover poorly attached to the baby.	Correctly re-attach the skin sensor and sensor cover (see page 3-2).
The *See Manual* light is illuminated or flashing and the audible alarm is sounding.	A software fault has been detected.	Send warmer for servicing.
	A hardware fault has been detected.	Send warmer for servicing.
The *Power Fail* light is flashing and the audible alarm is sounding.	The wall power supply to the warmer has been switched off.	Switch on the wall supply.
	The internal fuses, power cord or internal wiring may be defective.	Send warmer for servicing.

Chapter 7 - Appendices

1. Product Specifications

(a) Specifications

NOTE:

- Fisher & Paykel have a policy of continuous product improvement and reserve the right to alter specifications without notice.

(b) Electrical specifications

i Supply Voltage & Current

230 VAC ± 20 VAC	4 A max
120 VAC ± 12 VAC	8 A max
100 VAC ± 10 VAC	8A max

Controller only

ii Supply Voltage & Current

230 VAC ± 20 VAC	10 A max
120 VAC ± 12 VAC	14 A max
100 VAC ± 10 VAC	14 A max

Including accessories

iii Auxilliary Power Outlet

2A max - For medical rated devices only (IEC60601-1)

iv Supply Frequency

50-60 Hz

v Nominal Power Consumption

510 W

Controller only

vi Maximum Power Rating

230 VAC model	2300 W
120 VAC model	1700 W
100 VAC model	1400 W

Including accessories

vii Heater Power

450 W

Maximum irradiance is 32 mW/cm^2 at 100% heater power and 68 cm (26.8”) heater grill to mattress distance

viii Light Power

20 W

Maximum intensity is 400 lux at 68 cm (26.8”) heater grill to mattress distance

ix Temperature Measurement

Controller:

Skin temperature control resolution of 0.01°C

Displayed range 4.0°C to 50°C in 0.1°C increments

Sensor:

Sensor accuracy of ± 0.1°C

YSI 400 compatible thermistors - 500MΩ insulation at 100V between plug contacts and skin sensor cup

(c) Mechanical specifications

i IW910/920 Mobile Infant Warmers

Height	Adjustable, 151 to 191 cm (59.4” - 75.2”)For mattress heights from 71 to 110 cm (28” - 43.3”)
Width	65 cm (25.6”)
Depth	110 cm (43.3”)
Weight without accessories	22 kg (48.5 lb)
Maximum Load	4 kg (8.8lb) of Accessories 26 kg (57.3 lb) total weight
Castors	5 x Ø50 mm (2”), all locking
Heater head rotation	-130° to +130° from centre position

ii IW980/990 Wall Mount Infant Warmers

Height	36 cm (14.2”)
Width	20 cm (7.9”)
Depth	76 cm (29.9”)
Weight without accessories	7.4 kg (16.3 lb)
Heater head rotation	-90° to +90° from centre position Depends on installation

iv IW93x/95x CosyCot™ Infant Warmers

Height	Adjustable, 170 to 186 cm (66.9” - 73.2”) with electric elevator module 172, 183 cm (68”, 72”) with preset height module
Width	77 cm (30.3”) Excluding shelves
Depth	111 to 120 cm (43.7” - 47.2”) Depends on accessories fitted
Weight without accessories	60.8 kg (134 lb) *If manufactured before February 2004, 54.5 kg (120 lb)*
Maximum Load (Including Patient)	54.2 kg (119 lb) of Accessories, 115kg (253lb) total weight *If manufactured before February 2004, 60.5 kg (133 lb) of Accessories*
Heater grill to mattress	68 cm
Heater head rotation	-130° to +130° from centre position
Mattress height	93 to 108 cm (36.6” - 42.5”) with electric elevator module 91, 102 cm (36”, 40”) with preset height module
Bassinet size	Standard 65 cm x 65 cm (25.5” x 25.5”) Mattress size 62 cm x 62 cm Long 65 cm x 75 cm (25.5" x 29.5") Mattress size 62 cm x 72 cm
Bassinet positions	-10° to +10° adjustment
Castors	4 x Ø100 mm (4”), locking

(d) Compliance

The Fisher & Paykel infant warmers and accessories are designed to conform to requirements of:
IEC 60601-2-21
IEC 60601-1
IEC 60601-1-2
UL 2601-1
AS/NZS 3200.1.0
CAN/CSA C22.2 No. 601.1
ISO 8382
IEC60601-2-50
EN980:2003
BS EN10079-3:2000
BS EN 13220:1999
BS EN739:1998
BS EN837-1:1998
BS EN738-1:1997

For United States (120V) only:

INFANT RADIANT WARMER
CLASSIFIED BY
UNDERWRITERS LABORATORIES INC.
WITH RESPECT TO ELECTRIC SHOCK, FIRE,
MECHANICAL HAZARDS ONLY,
IN ACCORDANCE WITH UL2601-1,
CAN/CSA C22.2 NO. 601.1
84DJ

For European Union only:

CE 0123
MDD Class IIb

(e) Equipment classifications

Class I

Type B with Type BF applied part
Continuous Operation
Not classified against ingress of liquids
Not suitable for use in the presence of flammable anaesthetics

(f) Environmental specifications

	Operation	Transport	Storage
Temperature	18°C to 30°C	5°C to 50°C	-10°C to 60°C
Humidity	0% to 90%	0% to 90%	0% to 90%
	Normal Nursery Handling	Normal Transport Handling	

(g) General information

i Fuses in the equipment should only be replaced by fuses of the correct type as indicated on the appropriate labels or in the service manual.

ii full technical description including circuit diagrams, parts list and service data is contained within the IW900 Series Infant Warmer Technical Manual (pn 185041130), copies of which are held by your supplier or may be obtained from Fisher & Paykel Healthcare.

(h) Trademarks

Trademarks CosyCot™, DuoSense™, SunSpot™ , Neopuff™ SureSense™, DaisyBud™, DaisyDot™ DaisyDot mini™ and NeoWrap™ are trademarks of Fisher & Paykel.

INTERNATIONAL P O Box 14 348, Panmure, Auckland 1741, New Zealand Tel:+64 9 574 0100 Fax:+64 9 574 0158 Email: info@fphcare.com Web Site: www.fphcare.com USA Tel: +1 800 446 3908 or +1 949 453 4000 Fax:+1 949 453 4001 AUSTRALIA Tel:+61 3 9879 5022 Fax:+61 3 9879 5232 AUSTRIA Tel: 0800 29 31 23 Fax: 0800 29 31 22 BENELUX Tel:+31 78 644 0924 Fax:+31 78 644 0914 CHINA Tel:+86 20 3205 3486 Fax:+86 20 3205 2132 FRANCE Tel:+33 1 6446 5201 Fax:+33 1 6446 5221 GERMANY Tel:+49 7182 93777 0 Fax:+49 7182 93777 99 INDIA Tel:+91 80 4123 6041 Fax:+91-80-4123 6044 IRISH REPUBLIC Tel: 1800 409 011 ITALY Tel:+39 06 7839 2939 Fax:+39 06 7814 7709 JAPAN Tel:+81 3 3661 7205 Fax:+81 3 3661 7206 MIDDLE EAST Tel: +9 71 4 360 0849 Fax: +9 71 4 368 8110 SPAIN Tel:+34 902 013 346 Fax:+34 902 013 379 SWITZERLAND Tel: 0800 83 47 63 Fax: 0800 83 47 54 UK (EU Authorised Representative) Tel:+44 1628 626 136 Fax:+44 1628 626 146 Nthn Ireland Tel: 0800 132 189

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